

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

Claims 21-35 are rejected as being unpatentable over Japanese Patent Application Publication No. 2001-094551, hereinafter the Japanese reference, in view of U.S. Patent No. 5,432,023, hereinafter Yamada.

Claim 29 recites a direct methanol fuel cell including, among other elements, a fuel reservoir which stores at least a part of liquid fuel by an occluding element formed of a porous material and/or bundled fibers presenting capillarity, wherein the fuel reservoir is substantially totally filled with the occluding element formed of a porous material and/or bundled fibers presenting capillarity.

The Japanese reference discloses several embodiments of a liquid fuel vessel in combination with a liquid fuel cell. In the embodiment of drawing 6, container 1 contains liquid fuel 7 and liquid osmosis material 8 which fills only a portion of container 1. Liquid osmosis material 8 supplies liquid fuel 7 to fuel derivation section 12.

In the alternative embodiment of drawing 12 of the Japanese reference, container 1 contains liquid fuel 7, and outflow tubing 3 contains liquid osmosis material 8. When container 1 is attached to outflow tubing 3, valve element 23 of container 1 opens so as to allow liquid fuel 7 to be supplied to liquid osmosis material 8 of outflow tubing 3.

In rejecting Claim 29, the Official Action refers to the liquid osmosis material 8 within container 1 in the embodiment of drawing 6 of the Japanese reference as constituting the recited occluding element. However, it is clear that liquid osmosis

material 8 does not substantially totally fill container 1 as recited in Claim 29 as amended.

On the other hand, in the fuel cell disclosed in this application, the occluding element substantially totally fills the fuel reservoir. This arrangement inhibits an undesired large flow of fuel when the fuel cell is subjected to a downward shock.

Accordingly, Claim 29 is allowable over the Japanese reference in view of Yamada, and withdrawal of the rejection of Claim 29 is therefore respectfully requested.

Claim 22 recites a direct methanol fuel cell including, among other elements, a fuel reservoir which stores at least a part of liquid fuel by an occluding element formed of a porous material and/or bundled fibers presenting capillarity, wherein the fuel reservoir is substantially totally filled with the occluding element formed of a porous material and/or bundled fibers presenting capillarity. The fuel cell also comprises a fuel supply system for supplying liquid from the fuel reservoir to the fuel feeder including a valve element and/or a collector element.

In rejecting Claim 22, the Official Action refers to the liquid osmosis material 8 within container 1 in the embodiment of drawing 6 of the Japanese reference as constituting the recited occluding element. The Official Action also refers to valve element 23 of the embodiment of drawing 12 of the Japanese reference as constituting the recited valve element.

However, it is clear that liquid osmosis material 8 does not substantially totally fill container 1 as recited in Claim 22 as amended. On the other hand, in the fuel cell disclosed in this application, the occluding element substantially totally fills the fuel

reservoir. This arrangement inhibits an undesired large flow of fuel when the fuel cell is subjected to a downward shock.

Furthermore, in the embodiment of drawing 12, which is the only embodiment to include the valve element 23, container 1 does not store liquid fuel 7 via liquid osmosis material 8. In this embodiment, liquid osmosis material 8 is actually within outflow tube 3, and not within container 1. Instead, liquid fuel 7 is freely stored within container 1.

If the grounds for rejection are maintained, the Examiner is respectfully requested to explain why it would have been obvious to employ liquid osmosis material 8 in container 1 of the drawing 12 embodiment, or to employ a valve element 23 with container 1 of the drawing 6 embodiment. Absent such an explanation, it is respectfully requested that the Examiner withdraw the rejection of Claim 22.

Accordingly, Claim 22 is allowable over the Japanese reference in view of Yamada, and withdrawal of the rejection of Claim 22 is therefore respectfully requested.

Claim 21 recites a direct methanol fuel cell including, among other elements, a fuel reservoir which stores at least a part of liquid fuel by an occluding element formed of a porous material and/or bundled fibers presenting capillarity, and a fuel supply system for supplying liquid from the fuel reservoir to the fuel feeder including a valve element and/or a collector element.

In rejecting Claim 21, the Official Action refers to the liquid osmosis material 8 within container 1 in the embodiment of drawing 6 of the Japanese reference as constituting the recited occluding element. The Official Action also refers to valve

element 23 of the embodiment of drawing 12 of the Japanese reference as constituting the recited valve element.

However, in the embodiment of drawing 12, which is the only embodiment to include the valve element 23, container 1 does not use liquid osmosis material 8 to store liquid fuel 7. Instead, liquid fuel 7 is freely stored within container 1. Any liquid osmosis material 8 is actually within outflow tube 3, and not within container 1.

If the grounds for rejection are maintained, the Examiner is respectfully requested to explain why it would have been obvious to employ liquid osmosis material 8 in container 1 of the drawing 12 embodiment, or to employ a valve element 23 with container 1 of the drawing 6 embodiment. Absent such an explanation, it is respectfully requested that the Examiner withdraw the rejection of Claim 21.

Accordingly, Claim 21 is allowable over the Japanese reference in view of Yamada, and withdrawal of the rejection of Claim 21 is therefore respectfully requested.

All of the dependent claims are allowable at least by virtue of their dependence from allowable independent claims. The dependent claims also recite further distinguishing aspects of the direct methanol fuel cell at issue here. For example, Claims 23 and 30 both recite that the terminal end of a fuel feeder is connected to a spent fuel reservoir. On this point, the Official Action states that spent fuel is directed to a "space" as disclosed on paragraph 77 of the Japanese reference, and that it would have been obvious to use a spent fuel reservoir to collect this spent fuel. However, paragraph 77 of the Japanese reference actually refers to the return of CO₂ gas to container 1 via capillary 11 of the embodiment of drawing 4,

so as to prevent depressurization of container 1. It is noted that in other embodiments of the Japanese reference, pore 6 prevents depressurization by allowing outside air to replace liquid fuel 7 that has left container 1. It would therefore not have been obvious to employ a spent fuel reservoir in the embodiment of drawing 4 as maintained by the Official Action.

In view of the above amendments and remarks, the pending claims are all allowable and the entire application is in condition for allowance. Early and favorable action with respect to this application is therefore respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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